CLAIMS

1. A method for use in quantitative analysis of a turbid, pharmaceutical sample (24), comprising the following steps:
- providing an excitation beam (20) of radiation;
- 5   - irradiating a pharmaceutical, turbid sample (24) with said excitation beam (20) of radiation; and
- detecting the intensity of emitted radiation (30) from the sample (24) as a function of both the wavelength of the emitted radiation and the photon propagation time through said sample (24).

10   2. A method as claimed in claim 1, wherein said emitted radiation comprises transmitted radiation (30) from said sample (24).

3. A method as claimed in claim 1, wherein said emitted radiation comprises diffusely reflected radiation (30') from said sample (24).

4. A method as claimed in claim 1, wherein said emitted radiation comprises
15   transmitted radiation (30) as well as diffusely reflected radiation (20') from said sample (24).

5. A method as claimed in any of claims 1-4, wherein said excitation beam (20) is a pulsed excitation beam presenting a pulse train of excitation pulses (P), and wherein the step of detecting the intensity as a function of the photon propagation time is performed in
20   time synchronism with said excitation pulses (P).

6. A method as claimed in claim 5, wherein said excitation pulses (P) have a pulse length shorter than the photon propagation time.

7. A method as claimed in claim 6, wherein said excitation pulses (P) have a pulse length selected short enough in relation to the photon propagation time such that any
25   undesired interference between intensity measurements relating to two subsequent excitation pulses is prevented.

8. A method as claimed in any of claims 1-4, wherein said excitation beam (20) is an intensity modulated excitation beam.

9. A method as claimed in claim 8, wherein the step of detecting the intensity as a function of the photon propagation time is performed by comparing the phase of the intensity modulated excitation beam (20) with the phase of the emitted radiation (30) from the sample (24).

10. A method as claimed in claim 8 or 9, wherein the step of detecting the intensity as a function of the photon propagation time is performed by comparing the modulation depth of the intensity modulated excitation beam (20) with the modulation depth of the emitted radiation (30) from the sample (24).

11. A method as claimed in any of claims 1-10, wherein said detection of the intensity of emitted radiation (30) from the sample (24) as a function of time is performed by the use of a time-resolved detection unit.

12. A method as claimed in any of claims 1-10, wherein said detection of the intensity of emitted radiation (30) from the sample (24) as a function of time is performed by the use of a phase-resolved detection unit.

13. A method as claimed in any of claims 1-10, wherein said detection of the intensity of emitted radiation (30) from the sample (24) as a function of time is performed by the use of a time-gated system.

14. A method as claimed in any of the preceding claims, wherein said step of detecting the intensity further includes a spatial-resolved detection of said intensity.

15. A method as claimed in any of the preceding claims, wherein said pharmaceutical, turbid sample is a solid sample (24), in particular a tablet, a capsule, a bulk powder or an equivalent pharmaceutical dose.

16. A method as claimed in claim 15, wherein said step of irradiating the sample with said excitation beam comprises the step of irradiating a first surface of the solid sample (24).

17. A method as claimed in claim 15, wherein said step of irradiating the sample with said excitation beam (20) comprises the step of irradiating a first surface and a second surface of the solid sample (24), especially oppositely-directed surfaces.

18. A method as claimed in claim 17, wherein the first surface and the second surface of the solid sample are irradiated at different points in time.

19. A method as claimed in any of claims 1-14, wherein said pharmaceutical, turbid sample is a dispersion.

20. A method as claimed in any of the preceding claims, wherein the excitation beam (20) comprises infrared radiation.

21. A method as claimed in claim 20, wherein the infrared radiation is in the near infrared radiation (NIR).

22. A method as claimed in claim 21, wherein the radiation has a frequency in the range corresponding to wavelengths of from about 700 to about 1700 nm, particularly from 700 to 1300 nm.

23. A method as claimed in any of the preceding claims, wherein the excitation beam (20) comprises visible light.

24. A method as claimed in any of the preceding claims, wherein the excitation beam (20) comprises UV radiation.

25. A method for use in an analysis of turbid sample (24), wherein an excitation radiation is directed onto said sample (24) and wherein the intensity of emitted radiation (30) from the thus radiated sample (24) is measured as a function of both wavelength of the emitted radiation (30) and photon propagation time through said sample (24).

26. An apparatus for use in quantitative analysis of a turbid pharmaceutical sample (24), comprising:
- means (10, 12, 16) for generating an excitation beam (20) of radiation;
- means for positioning a pharmaceutical, turbid sample (24),
- means for focusing said excitation beam (20) onto said sample (24);
- means (32, 34, 36) for detecting the intensity of emitted radiation (30) from the sample (24) as a function of both the wavelength of the emitted radiation and the photon propagation time through said sample (24).

27. An apparatus as claimed in claim 26, wherein said means for detecting comprises a time-resolved detection unit (34).

28. An apparatus as claimed in claim 27, wherein said time-resolved detection unit comprises a streak camera (34).

29. An apparatus as claimed in claim 26, wherein said means for detecting comprises a phase-resolved detection unit.

30. An apparatus as claimed in claim 26, wherein said means for detecting comprises a time-gated system.

31. An apparatus as claimed in any of claims 26-30, further comprising means for performing a spatial-resolved detection of said intensity.

32. An apparatus as claimed in any of claims 26-31, wherein said pharmaceutical, turbid sample is a solid sample (24), in particular a tablet, a capsule, a bulk powder or an equivalent pharmaceutical dose.

33. A apparatus as claimed in any of claims 26-31, wherein said pharmaceutical, turbid sample is a dispersion.

34. An apparatus as claimed in claim 26, wherein the excitation beam (20) comprises infrared radiation.

35. An apparatus as claimed in claim 34, wherein the infrared radiation is in the near infrared radiation (NIR).

36. An apparatus as claimed in claim 26, wherein the radiation has a frequency in the range corresponding to wavelengths of from about 700 to about 1700 nm, particularly from 700 to 1300 nm.

37. An apparatus as claimed in any of claims 26-36, wherein the excitation beam (20) comprises visible light.

38. An apparatus as claimed in any of claims 26-37, wherein the excitation beam (20) comprises UV radiation.

39. An apparatus as claimed in any of claims 26-38, wherein said means (10, 12, 16) for generating comprises one or more diode lasers.

40. An apparatus as claimed in any of claims 26-38, wherein said means (10, 12, 16) for generating comprises an intensity modulated lamp.